

Chapter 4 Discussion

This Study

This was a physician driven intervention study, investigating the quality of diabetes care at the diabetes clinics of a tertiary care hospital. Quality of care was assessed before and after the implementation of measures aimed at improving the quality of care rendered as well as in comparison with a control group without measures to improve the quality of care.

The care as indicated by certain process measures improved significantly from baseline as well as in comparison with the control group. It thus seems that the intervention, which included a physician-training program and the introduction of a structured consultation schedule, is effective in improving the quality of care delivered to diabetic patients.

This intervention also seems to improve the glycaemic control of patients over time although not statistically significant. Furthermore the proportion of patients with uncontrolled diabetes decreased and the proportion of patients with good glycaemic control increased.

The number of hospital admissions did not significantly reduce but the reasons for admissions did change from more glycaemic control related to more chronic complications related. The non-significant increase in hospital admissions due to hyperglycaemia in the intervention group should be interpreted in the light of the non-significant decrease in admissions due to acute hyperglycaemic complications. This as such is indicative of improved quality of care since better follow up improved the detection of complications and reduce the admission related to poor glycaemic control.

Glucometers

The hospital supplies patients with medication for diabetes and hypertension etc. but does not supply any patient with glucometers although test strips are supplied for the odd patient who is in possession of a glucometer. Glucometers are expensive and out of reach of the average

Problems encountered in the care of diabetic patients at Kalafong

Schooling and Literacy

More than one third of patients attending the clinics at Kalafong have schooling of less than four years and are therefore practically illiterate. About 13% of patients are educated to matric and higher. This state of affairs makes patient education more difficult and renders all written diabetes care information much less useful.

Language

Most of the patients attending the diabetes clinics are able to speak English although not their mother tongue. Most of the communication in the clinic is therefore done in English. A few patients are unable to communicate in the languages mastered by the attending doctors in which case the help of a nurse translator is used. The fact that service is not provided in the language patients primarily speak may also hamper the quality of patient education.

Socio-economic factors

Less than 50% of patients attending the clinics have a reliable source of income. More or less 50% of patients are unemployed, and a significant proportion of those who have a reliable income are state pensioners. All the patients come from a socio-economic disadvantaged population, which makes transport to and from the clinic costly and following a diabetic diet very difficult.

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patient attending the clinics, this makes home glucose monitoring impossible with significant implications on glycaemic control.

Issues with regards to the study design

Quasi-experimental studies

Quasi-experimental studies are the most commonly used designs in guideline implementation studies where there are practical and ethical barriers in the conduction of randomised controlled trials. There are three types of quasi-experimental study designs namely: uncontrolled before and after studies, time series designs and controlled before and after studies.⁵⁰ Of these the best design is the controlled before and after study design. This study had a controlled before and after design and are therefore limited by the shortcomings of this type of design namely:

1. The study and control groups should have the same baseline characteristics and performance. For this study the intervention and control groups did not differ significantly with regards to baseline characteristics namely: demographical data, the number of clinic visits and consultation time. With regards to outcome and process measures the intervention and control groups did not differ significantly at baseline.
2. All other factors should be the same for both the intervention and control groups except for the intervention under investigation. During this study the nursing staff, and all other facilities remained the same for both the intervention and control groups.
3. Data should be collected at the same time for both groups before and after the intervention. All data was collected for both the intervention and control groups simultaneously at baseline and post-intervention. The same person collected the data at baseline for both groups and pos-intervention for both groups.

4. Between groups analysis should be done comparing the study and control groups following the intervention. This was done for this study and therefore the differences can be assumed to be due to the intervention.

Bias and Confounding

An attempt to reduce bias was made throughout the study.

Firstly the selection of patient files: both the intervention and control groups were randomly selected for record auditing. Thereby preventing the selection of patients with poorer care to be compared to patient with better care in the intervention or control groups. (Selection bias) This is evident in the absence of significant difference between the baseline parameters.

Secondly for the first (baseline) audit the same person audited the patient records for both the intervention and control clinics. The person performing the second audit (post-intervention) was also the same for both the intervention and control groups. Observer bias was therefore limited.

The two groups were kept separate as far as possible. A patient in the intervention clinic was not allowed to change to the control clinic and vice versa. A Few patients who were randomly selected for file audit at baseline came on the wrong clinic day and were therefore analysed in the group where they usually received their diabetes care.

All doctors attending to diabetes patients were blinded to which patients were selected for record auditing. No cross over of any physicians between the two clinics occurred during the study period.

Confounding by the Hawthorne effect (The non-specific beneficial effect of taking part in research) could not be prevented since all doctors taking care of diabetic clinic patients knew that they were studied and signed informed consent in that respect. This might explain why the control clinic,

although to a lesser degree, also showed improvement in the care and outcome measures.

Process measures

Data from the baseline audit of this study compares very poorly to that of other studies in the world.

Selection of the intervention and control clinic

The ideal would have been to randomise a number of comparable clinics to both the intervention and control arms of a study, but for this study this ideal was not feasible due to the fact that no comparable clinics could be found. The two Kalafong diabetic clinics compare the best with each other; the only difference between the two clinics was the difference in patient load. Due to the greater patient load in the Wednesday clinic, which made the intervention to improve the quality of care more difficult, the Wednesday clinic was selected to be the intervention clinic. If the proposed intervention were to be successful in the busier Wednesday clinic it would be more generalisable and valid. With regards to staff both the clinics have the same nursing staff. Two medical officers, one registrar and one consultant physician rendered medical care in each of the two clinics.

The Wednesday clinic was used as the intervention group and the Friday clinic as control group. The reason for this was as mentioned that the patient load is higher and an improvement in quality of care would therefore be more meaningful as it would occur despite this limitation (table 4.1).

Table 4.1: Number of patients seen at the diabetes (intervention and control) clinics of kalafong hospital during the first six months of the year 2001

	Jan	Feb	March	April	May	June
Wednesday (intervention clinic)	161	111	124	126	195	121
Friday (control clinic)	124	143	123	155	128	115
Total	285	254	224	281	322	236

Other than process measures and outcome measures, measures of patient education received in the diabetes clinics, with regards to diabetes,

Study results in relation to other studies

Process measures

Data from the baseline audit of this study compare very poorly to that of audits related to quality of diabetes patient care elsewhere in the world. (Table 1.1, 1.2, 1.3) But the intervention group after the intervention compare very favourably to the quality of care delivered elsewhere in the world.

What is clearly different from these clinics is the average number of annual patient visits, which markedly exceed that of the two Kalafong diabetes clinics. (Table 1.1)

Outcome Measures

If the proportion of patients with poor glycaemic control in this study (table 3.7) is compared to that of clinics in a large urban hospital in the USA²⁵, the diabetes clinics of Kalafong at baseline compared poorly to them. After the intervention the local clinics compared much better to their American counterparts.

Shortcomings of this study

With regards to the study design a clustered randomised controlled trial with a number of clinics in each arm would have been better; although the cost, manpower and clinic cooperation would have been difficult to reach with the resources that were available for this study.

A limited number of measures were utilised to assess the quality of diabetes care in the two clinics studied but more outcome measures especially blood pressure and LDL cholesterol could have aided in a more comprehensive assessment of patient outcome.

Other than process measures and outcome measures, measures of patient education received in the diabetes clinics, with regards to diabetes,

would also have been useful in the assessment of comprehensive patient care. This however would be much more difficult to measure.

Questions arising from this study for further study

The first question arising is: How lasting will the effect of this intervention be on the improvement of diabetes care in the intervention group/ clinic?

Secondly, will this intervention improve the quality of care in the neighbouring primary health care clinics?

If the quality of outpatient care can improve, what will happen if a similar intervention is introduced to the management of inpatient diabetic patients?

Fourthly, how did this intervention change the total cost of diabetes care in the clinics?

Conclusion

In conclusion this study succeeded in providing evidence that a structured consultation schedule and a physicians education program improve the quality of diabetes care at a tertiary care diabetes clinic.

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6. Levitt NS, Stavn K, Daniels AG, Patel M, Lombard C, Zwarenstein M. Lack of impact of a National diabetes guideline based intervention package on glycaemic and blood pressure control at primary care level in Cape Town. *J Endocrin Metab Diab S Afr* 2002; 7:21.